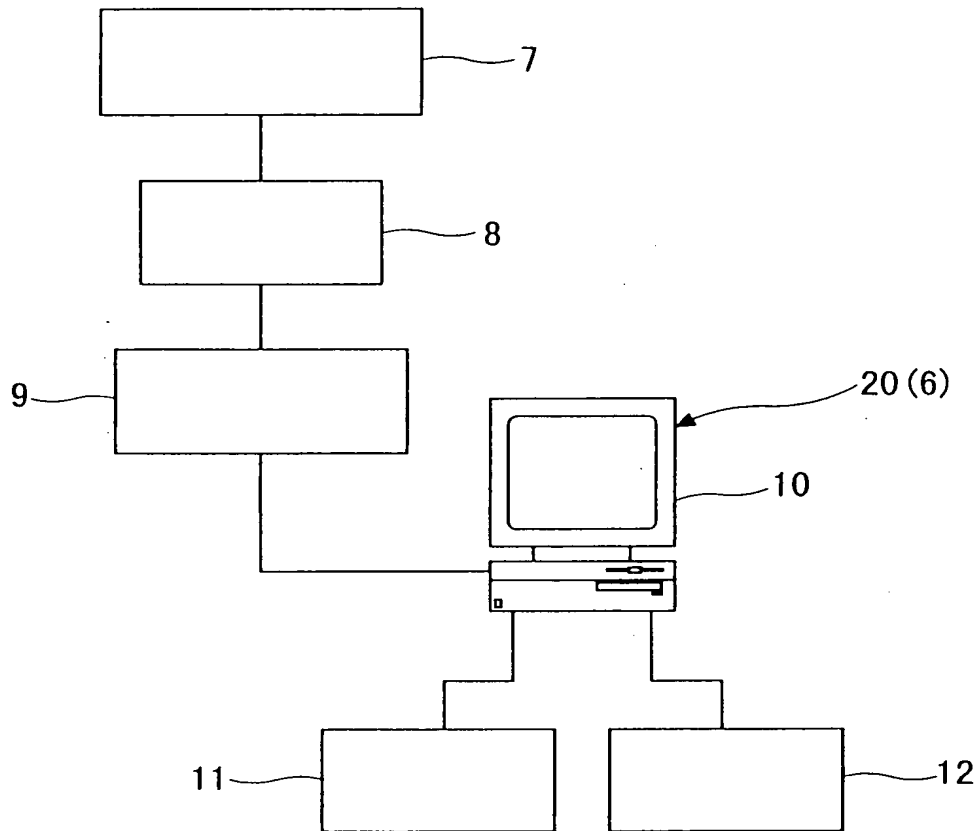
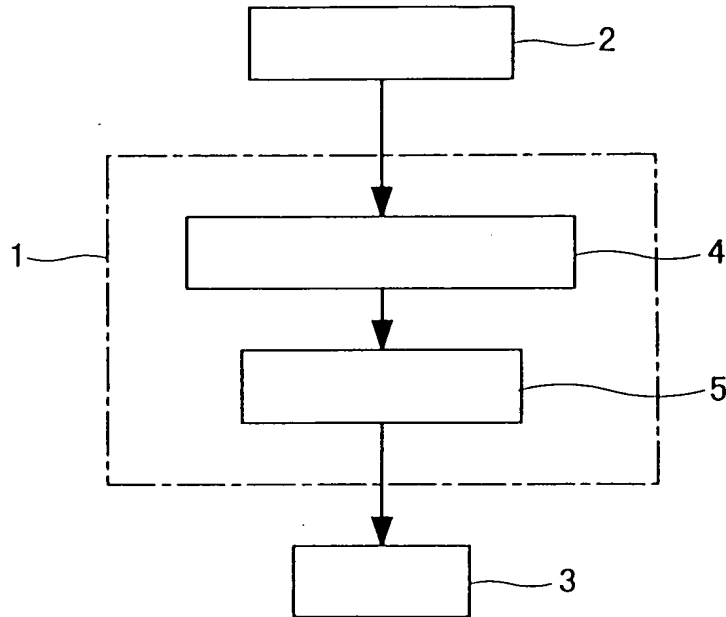


FIG. 1



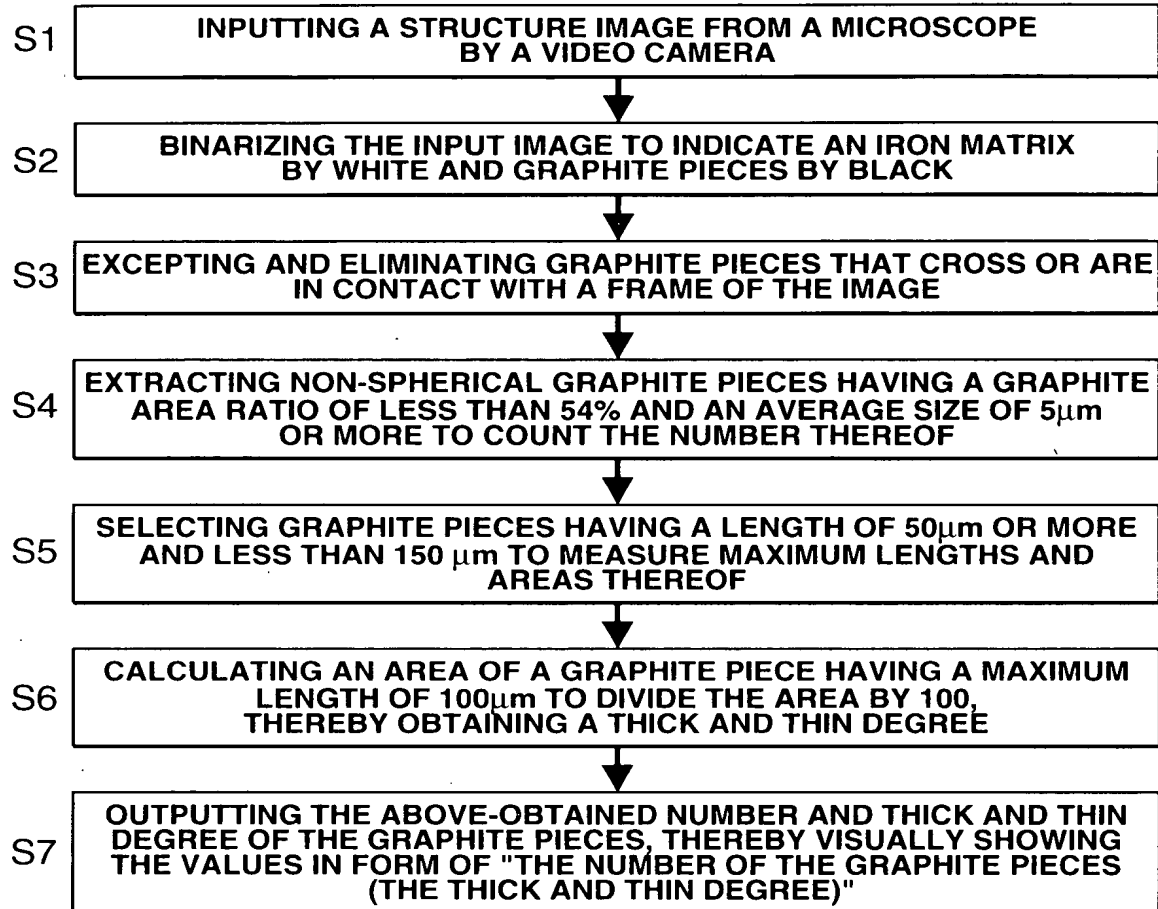
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FIG. 2



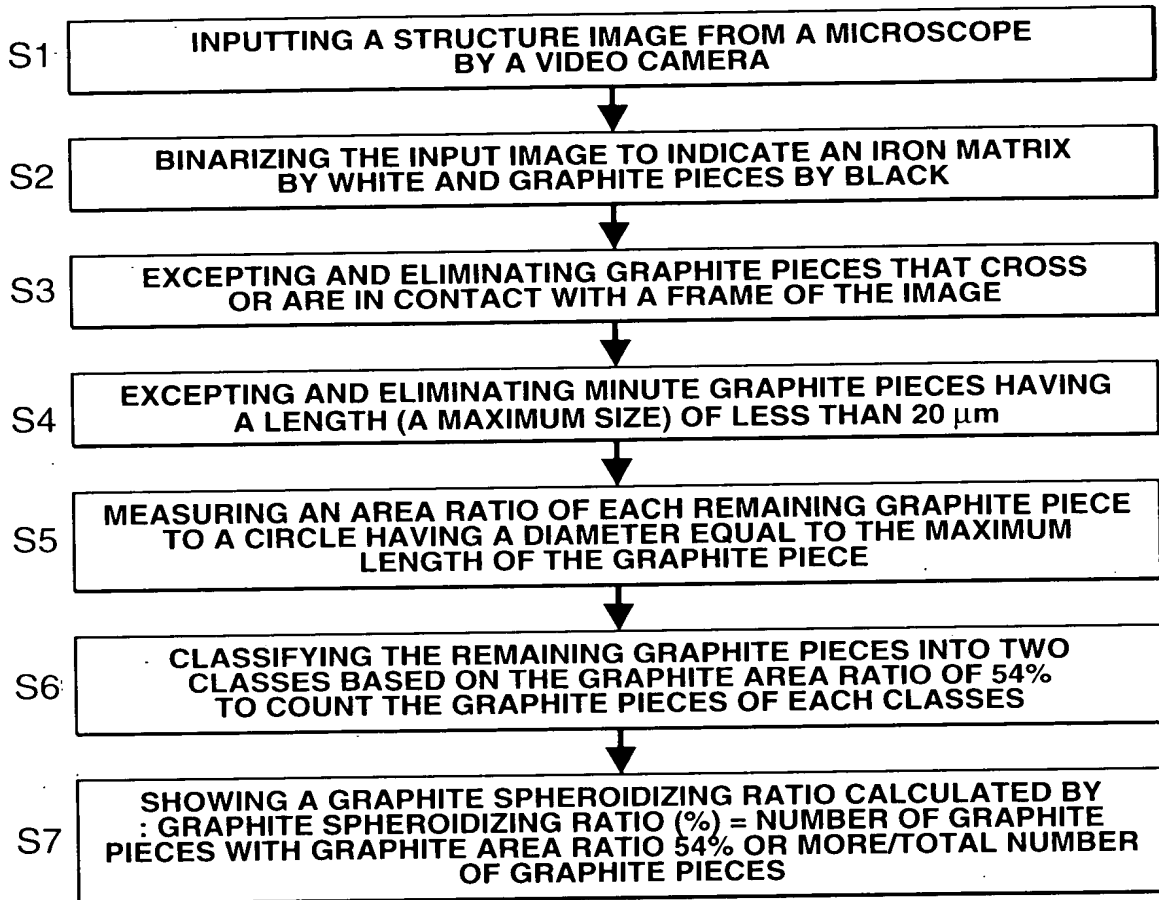
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FIG. 3



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FIG. 4



STEPS OF IMAGE ANALYSIS FOR MEASURING GRAPHITE SPHEROIDIZING RATIO

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FIG. 5

RECORD OF GRAPHITE SPHEROIDIZING RATIO MEASUREMENT				
MEASUREMENT DATE 2002/03/29 <FULL FIELD MEASUREMENT>				
GRAPHITE PIECES HAVING MAXIMUM SIZE OF 20 MICRONS OR LESS WERE EXCEPTED				
GRAPHITE STRUCTURE		STRUCTURES I TO IV	STRUCTURES V TO VI	GRAPHITE SPHEROIDIZING RATIO (%)
COEFFICIENT		0	1.0	
MEASUREMENT FIELD	1	109	1	0.9
	2	112	0	0.9
	3	109	1	0.9
	4	*	*	*
	5	*	*	*
TOTAL FIELD		330	2	0.6

<STRUCTURE VIEW>



OUTPUT OF IMAGE ANALYSIS RESULT

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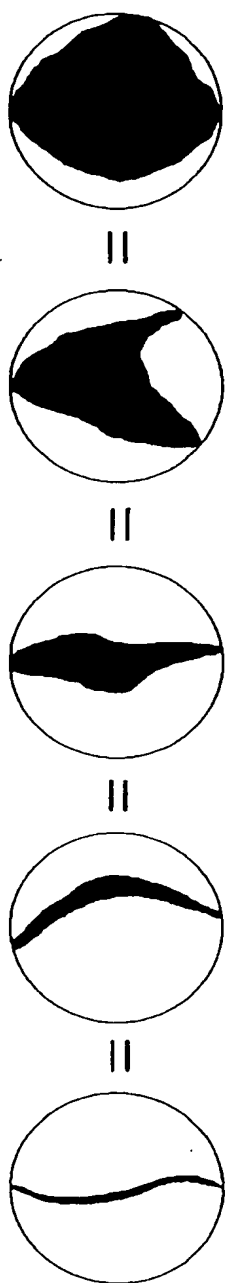


FIG. 6A

MAXIMUM SIZE

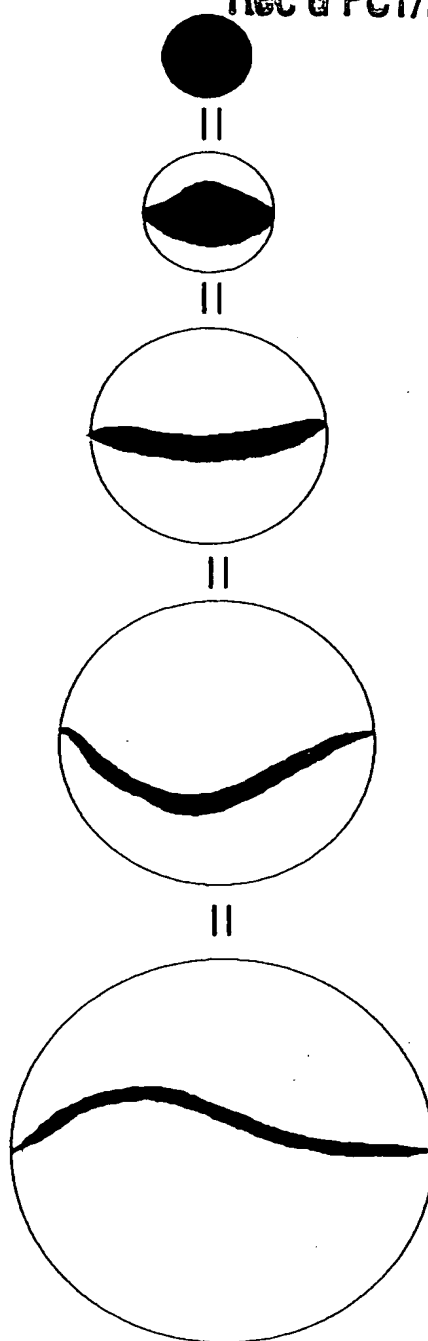


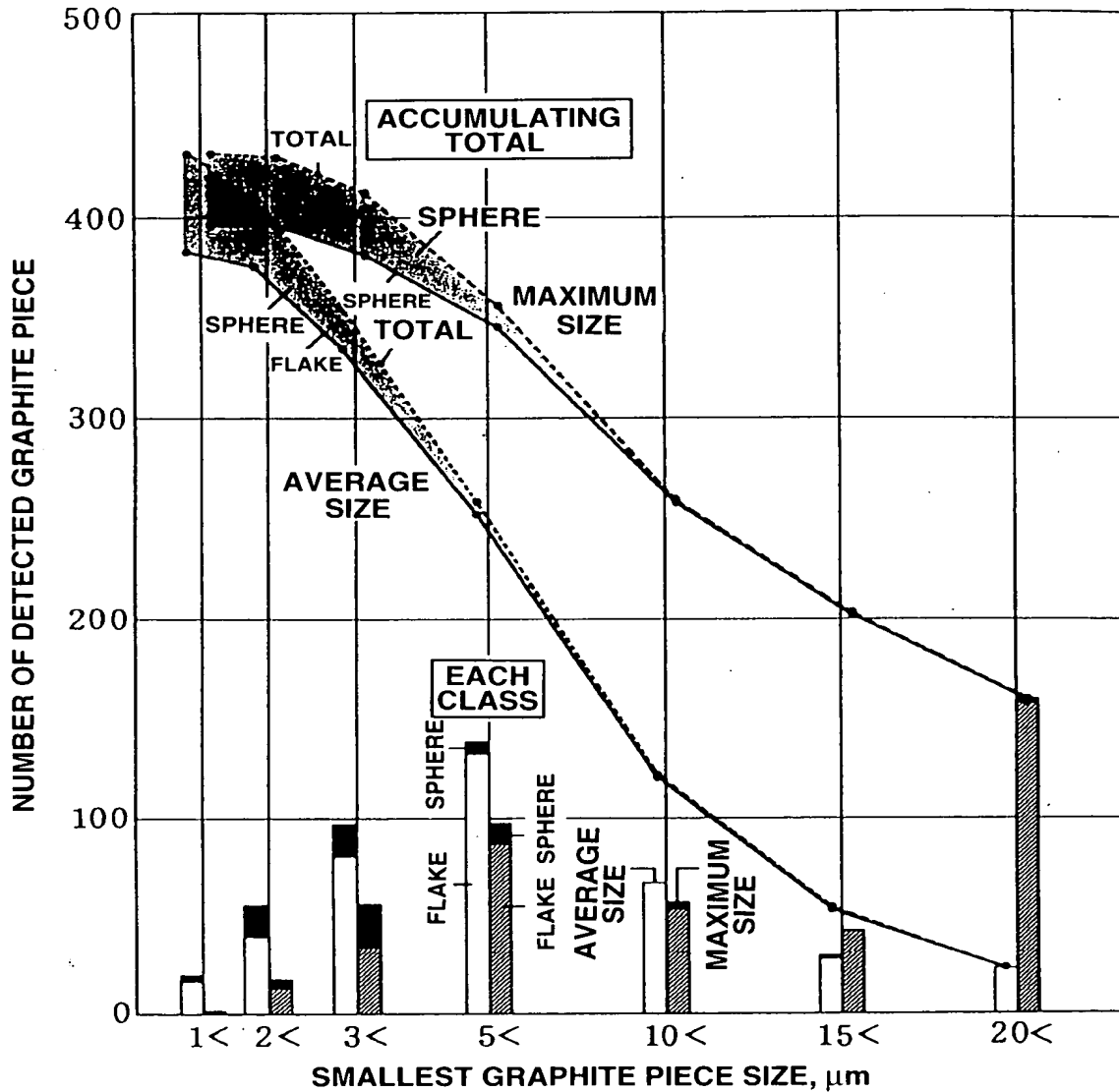
FIG. 6B

AVERAGE SIZE

MAXIMUM SIZE AND AVERAGE SIZE FOR MEASURING GRAPHITE SIZE

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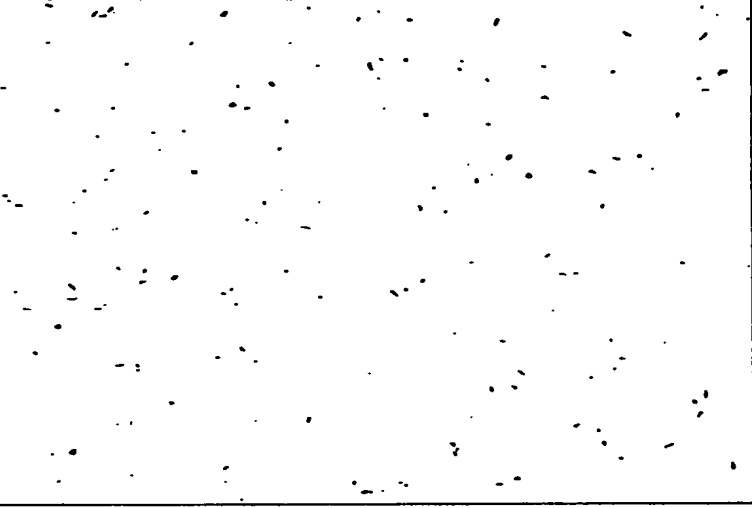

FIG. 7



NUMBERS OF DETECTED GRAPHITE PIECES
OF DIFFERENT SHAPES AND SIZES

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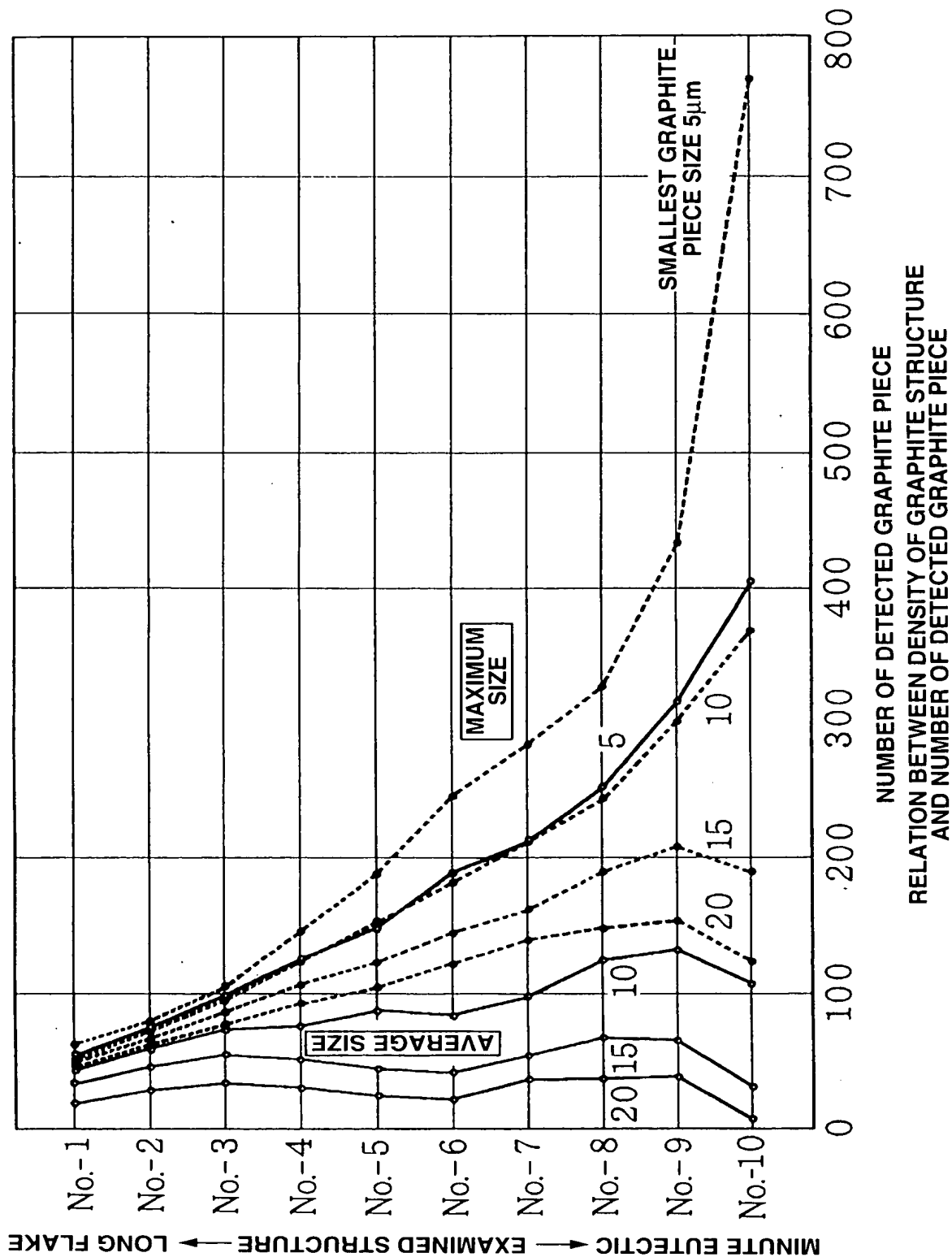
FIG. 8

GRAPHITE SIZE	ALL GRAPHITE PIECES	MAXIMUM SIZE OF LESS THAN 10 μ m	MAXIMUM SIZE OF 10 μ m OR MORE
			
	NUMBER OF GRAPHITE PIECES	NUMBER OF GRAPHITE PIECES	NUMBER OF GRAPHITE PIECES
FLAKE	281	FLAKE	177
SPHERE	32	SPHERE	2
TOTAL	313	TOTAL	179

DIVISION OF GRAPHITE PIECES INTO THOSE OF MAXIMUM SIZE
OF LESS THAN 10 μ m AND THOSE OF MAXIMUM SIZE OF 10 μ m OR MORE

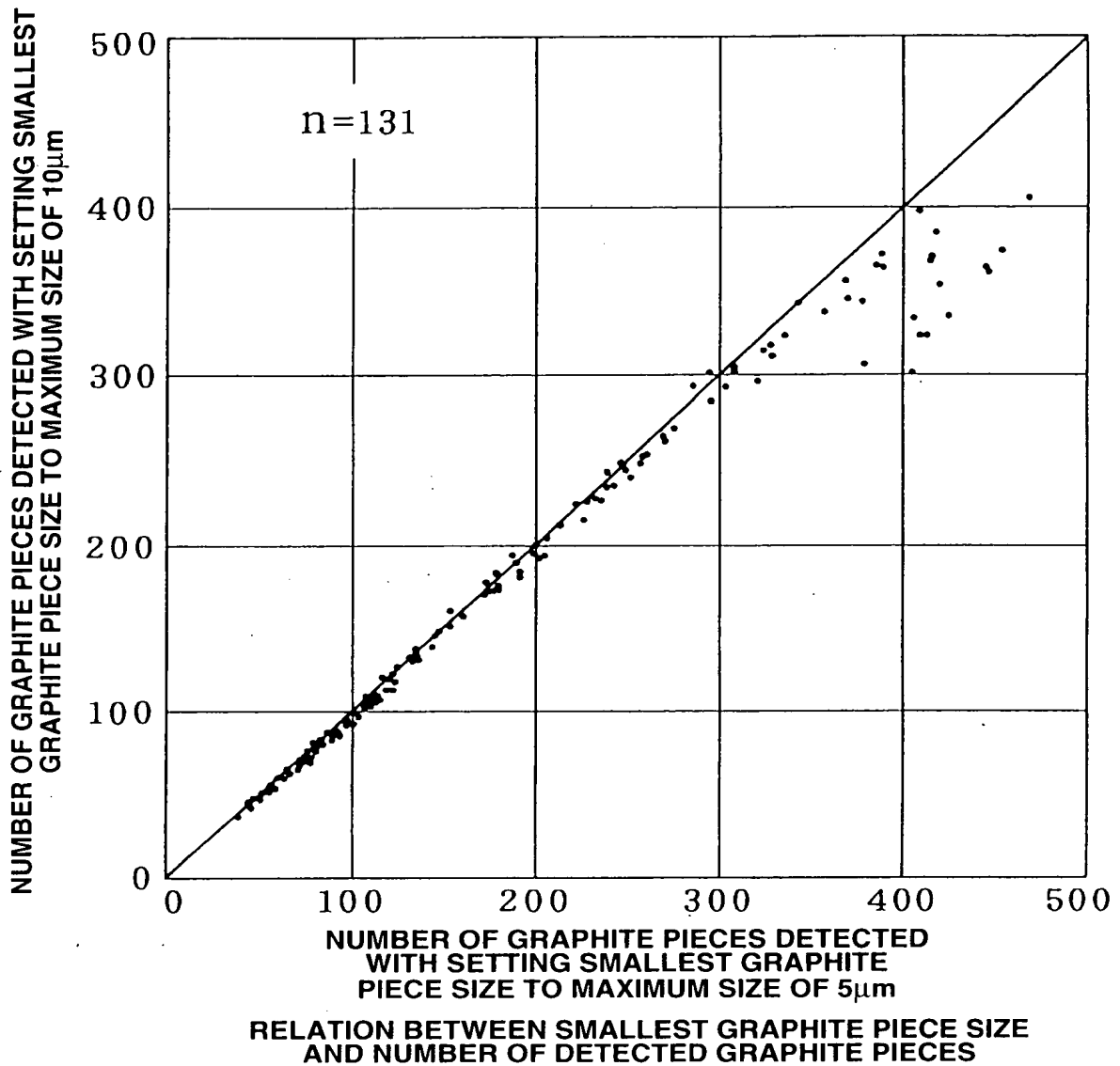
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FIG. 9



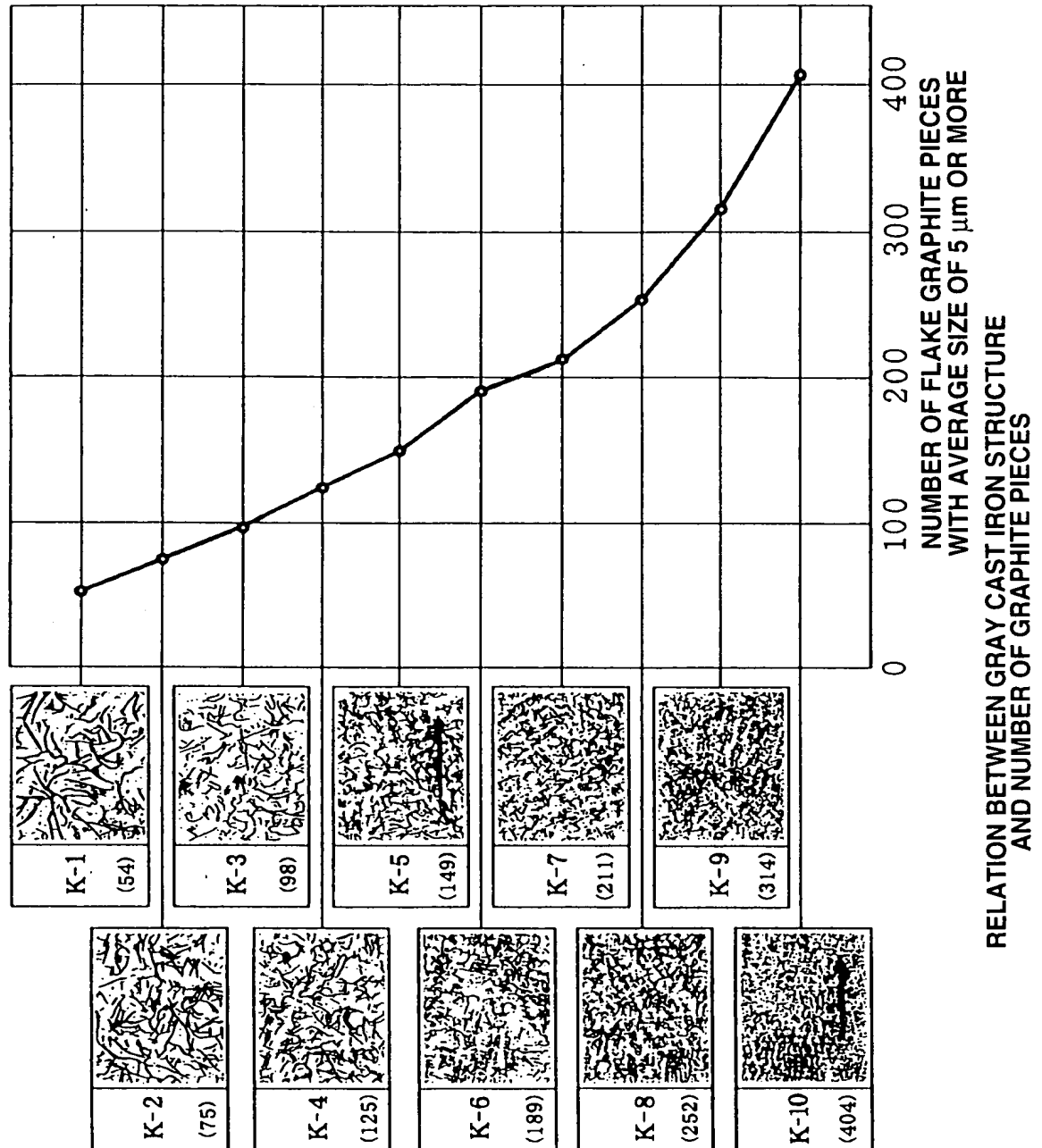
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FIG. 10



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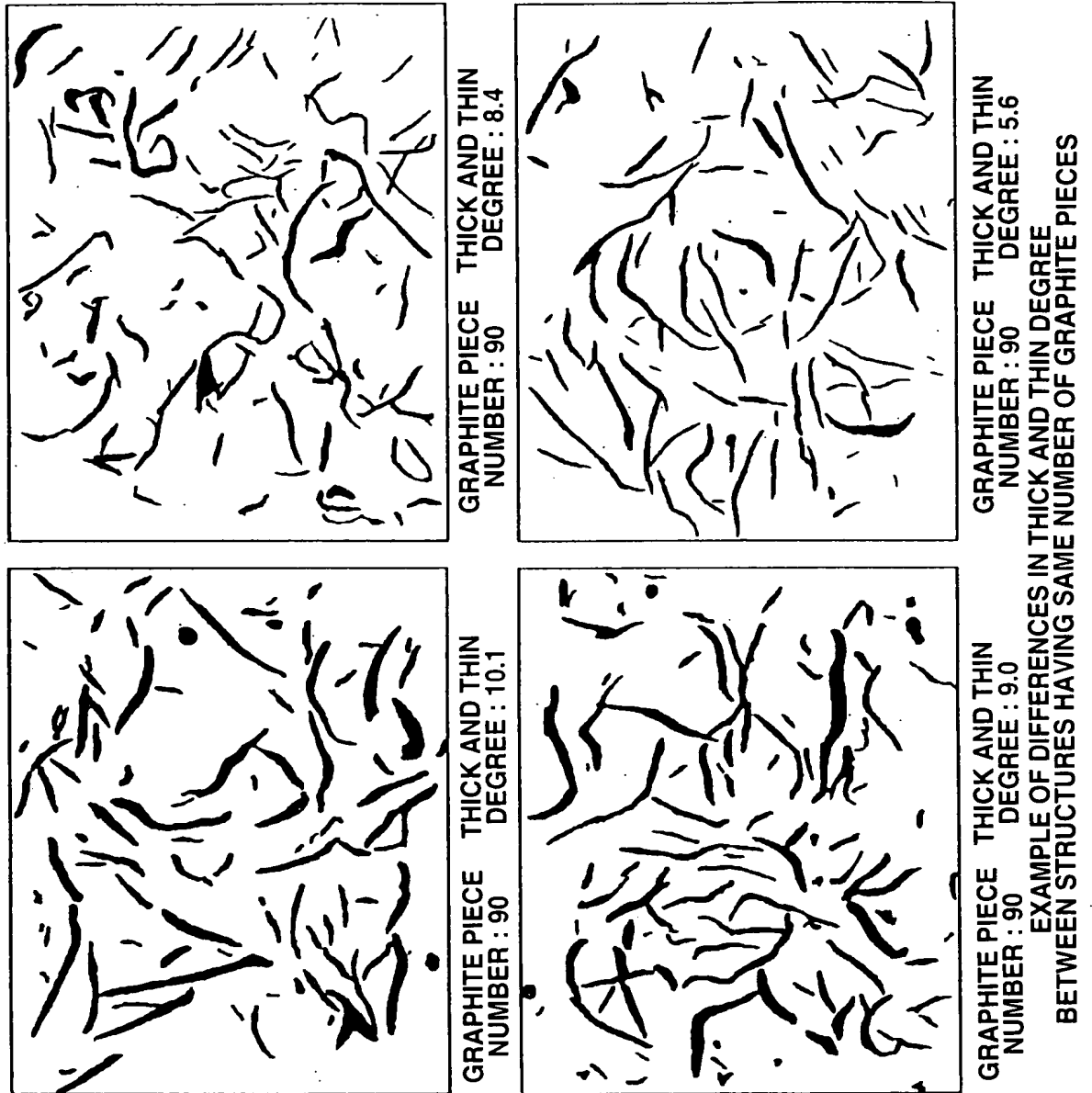
FIG. 11



10/517229

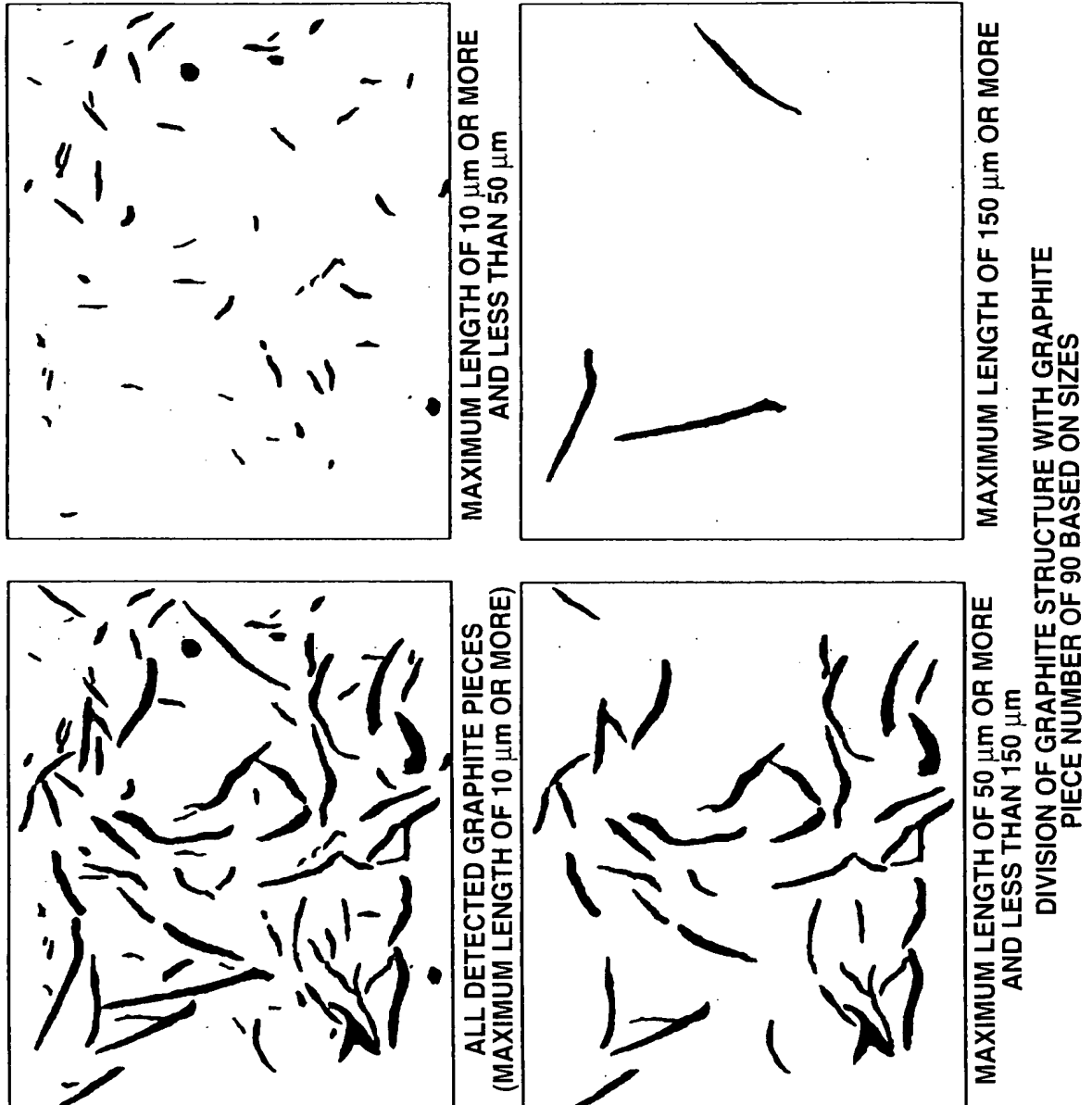
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FIG. 12



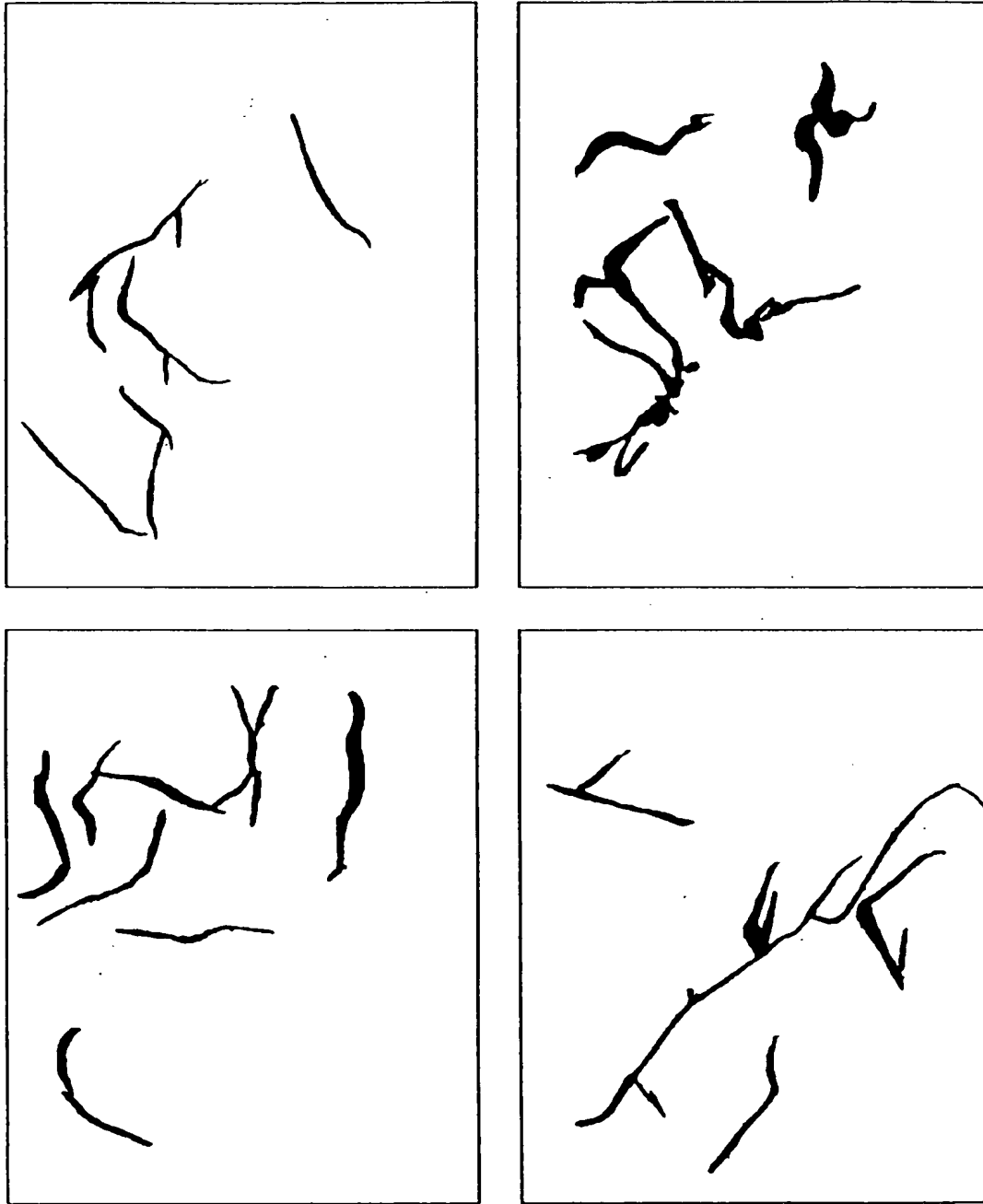
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FIG. 13



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FIG. 14

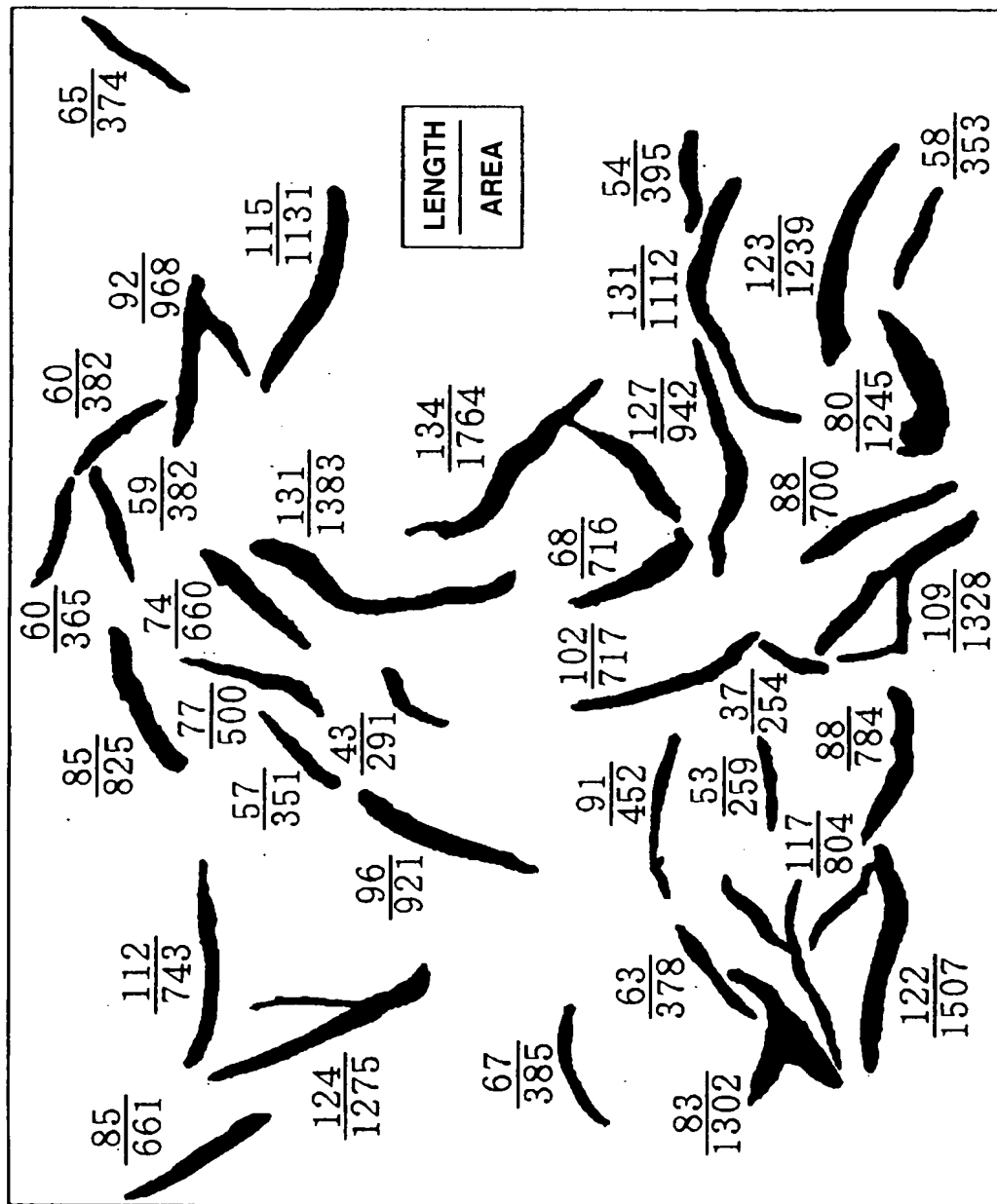


LINKAGE OF A PLURALITY OF GRAPHITE PIECES INCREASED AMONG
GRAPHITE PIECES WITH SIZE OF APPROXIMATELY 150 μm OR MORE

10/517229

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FIG. 15

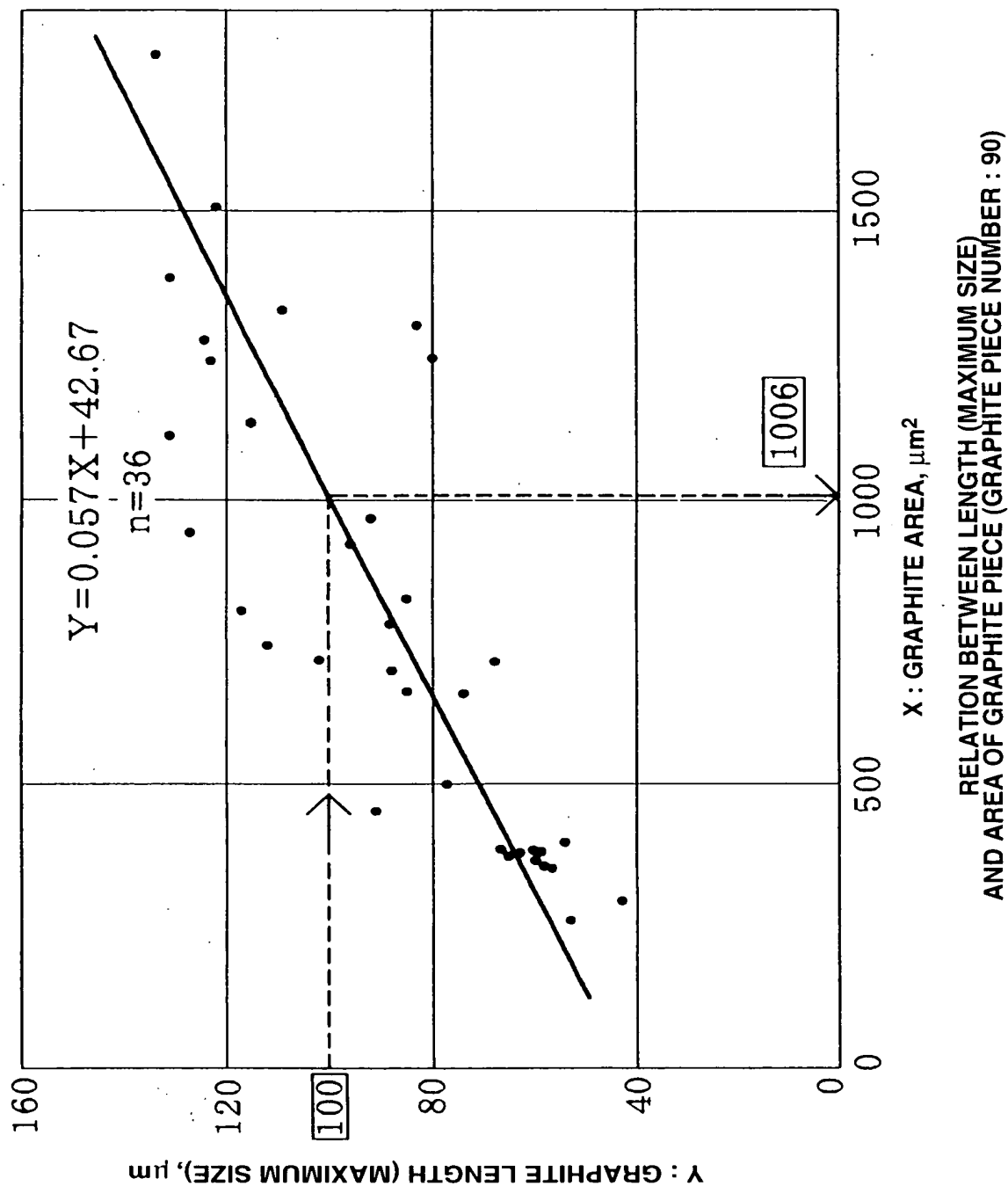


MEASUREMENT OF LENGTH AND AREA OF EACH GRAPHITE PIECE
IN GRAPHITE STRUCTURE WITH GRAPHITE PIECE NUMBER 90

10/517229

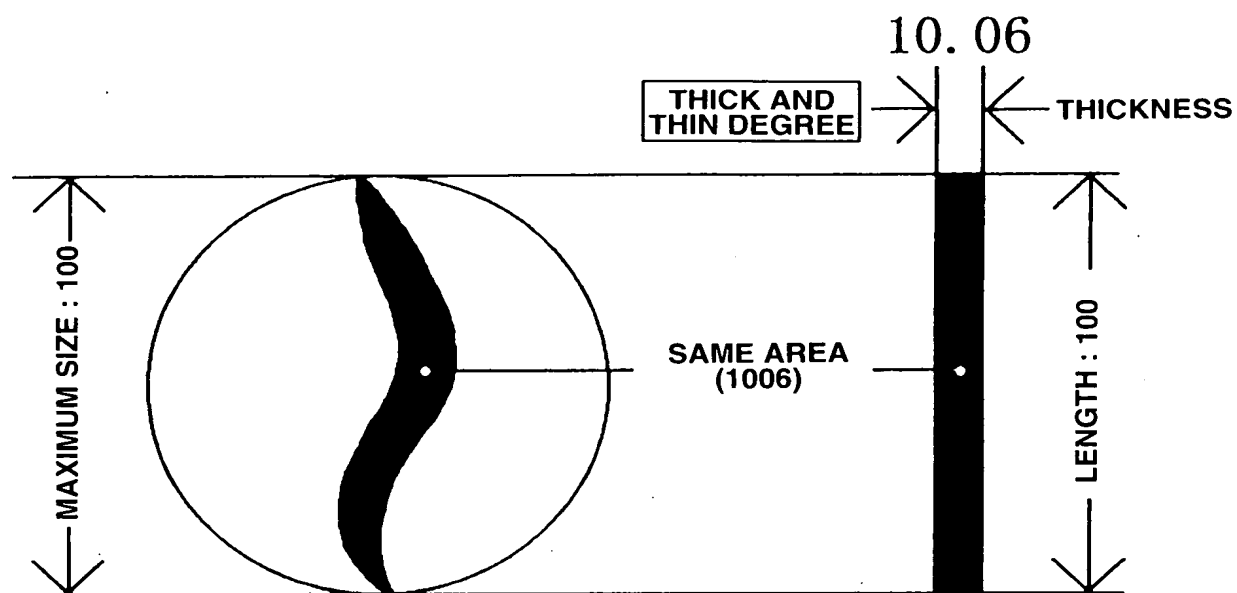
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FIG. 16



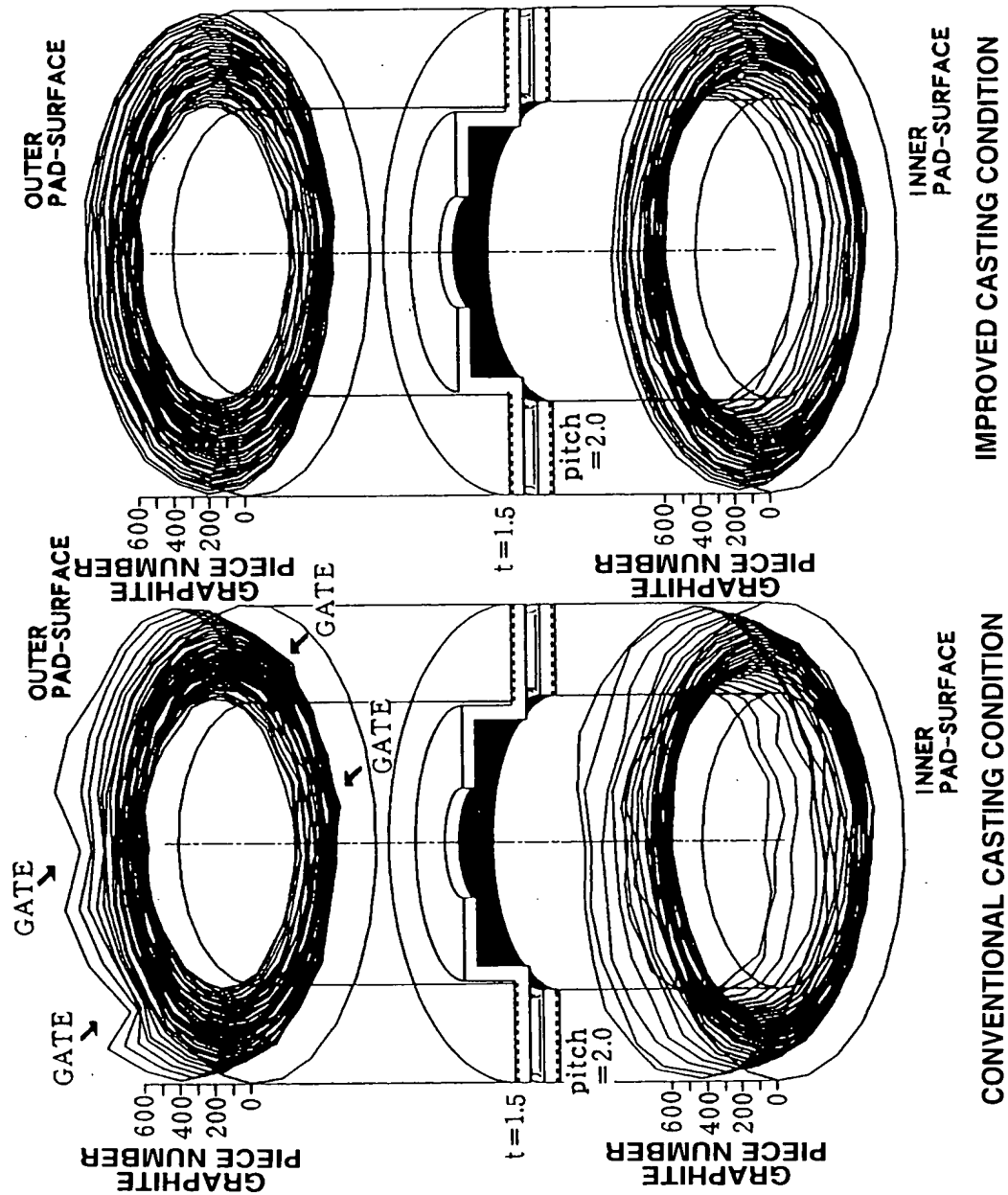
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FIG. 17



INDICATION OF THICK AND THIN DEGREE OF GRAPHITE PIECES
BASED ON THICKNESS OF CALCULATIONAL, ASSUMPTIVE,
REPRESENTATIVE GRAPHITE PIECE WITH LENGTH OF 100 μ m

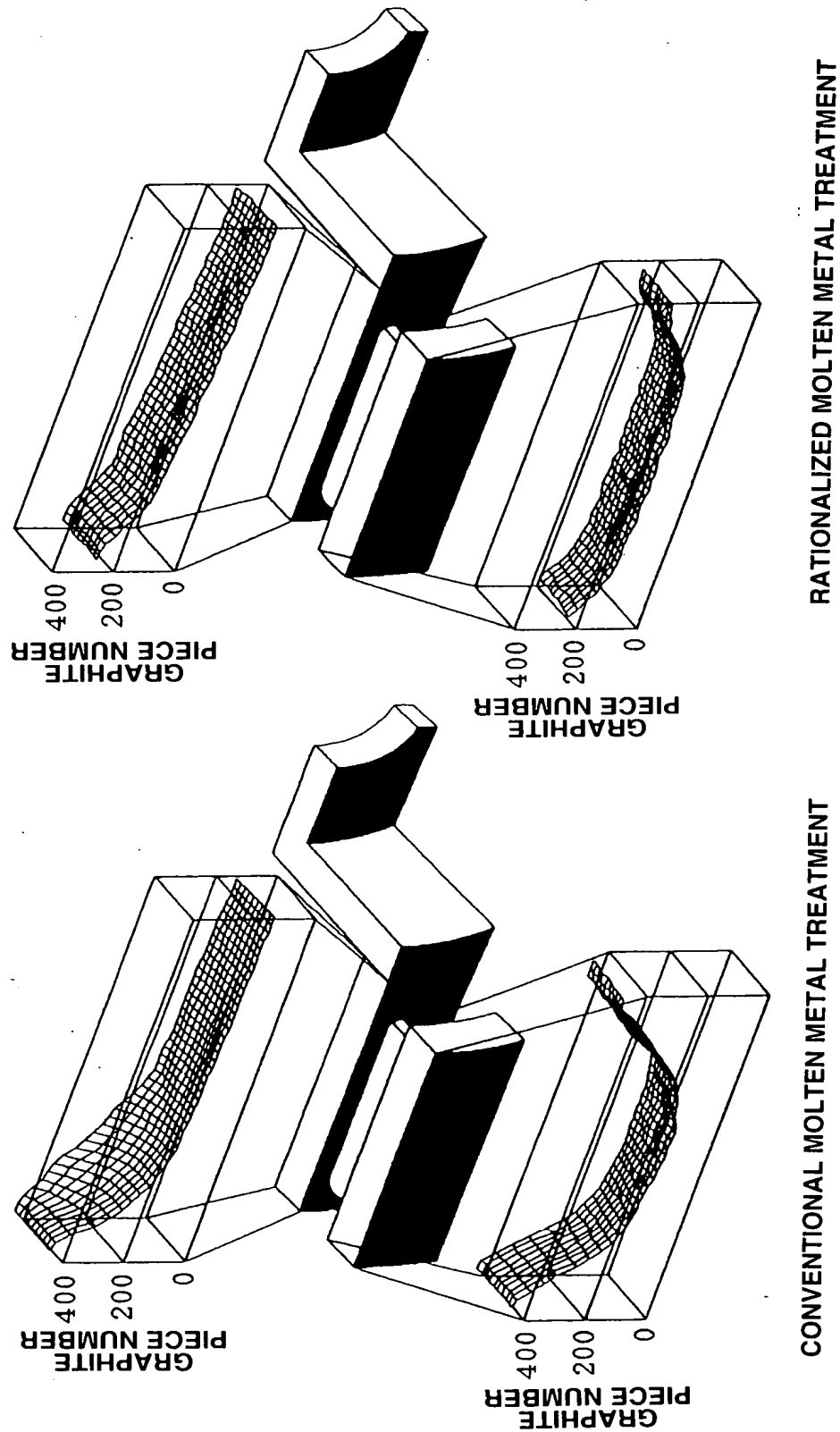
FIG. 18



HOMOGENIZATION OF DISC ROTOR GRAPHITE
STRUCTURE BY IMPROVING CASTING CONDITION

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FIG. 19



IMPROVEMENT OF DISC ROTOR GRAPHITE STRUCTURE
BY RATIONALIZING MOLTEN METAL TREATMENT

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FIG. 20

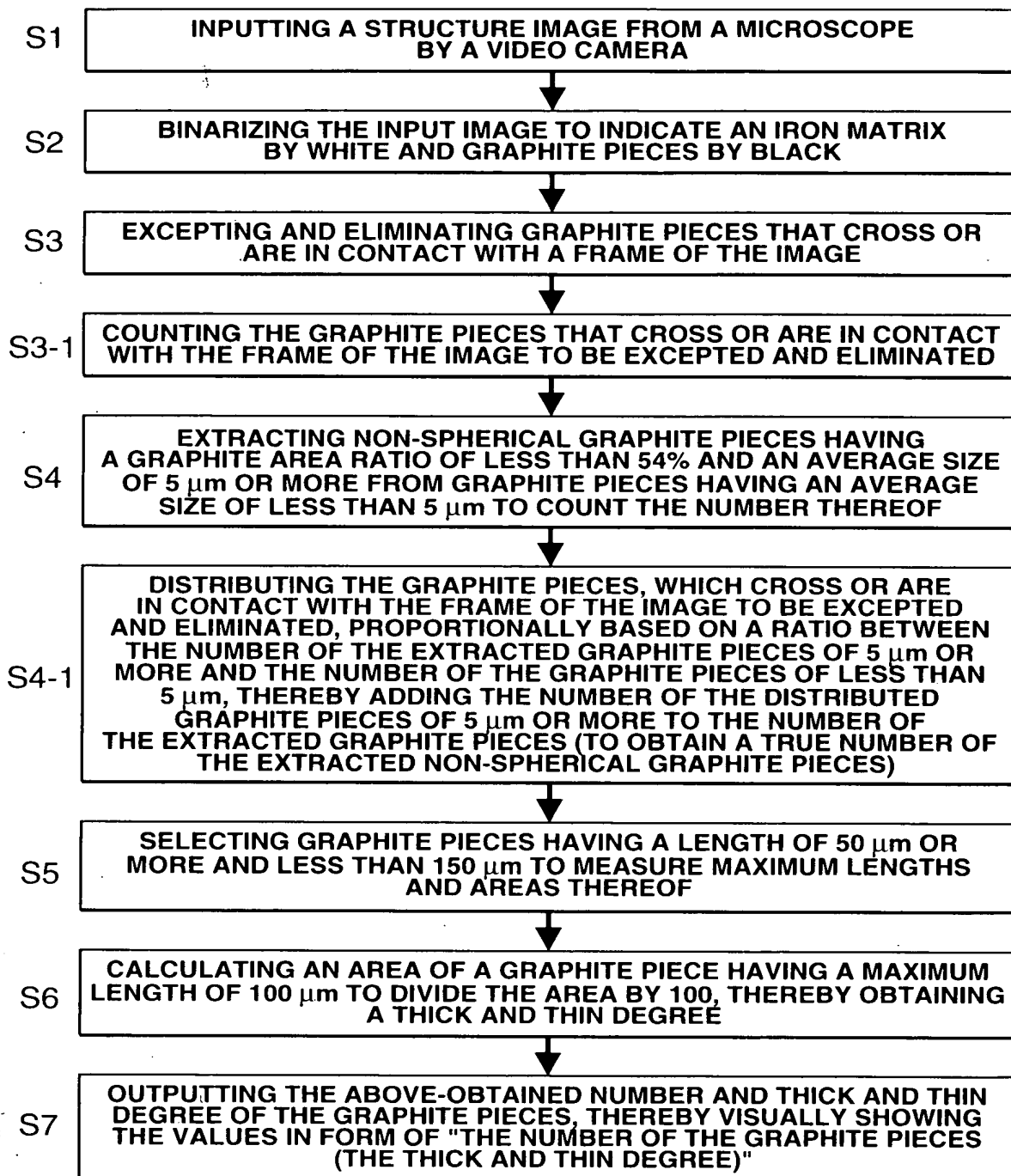
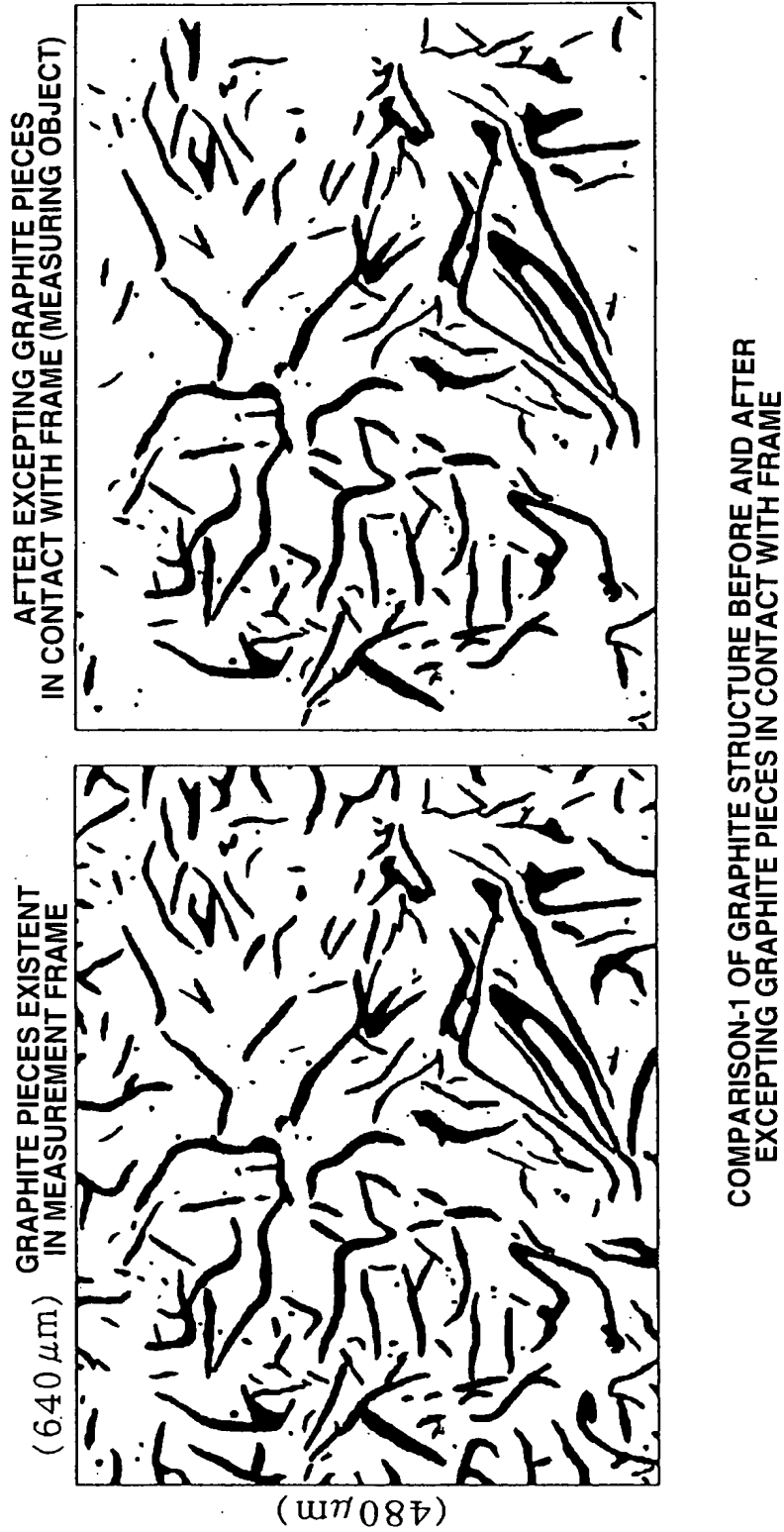
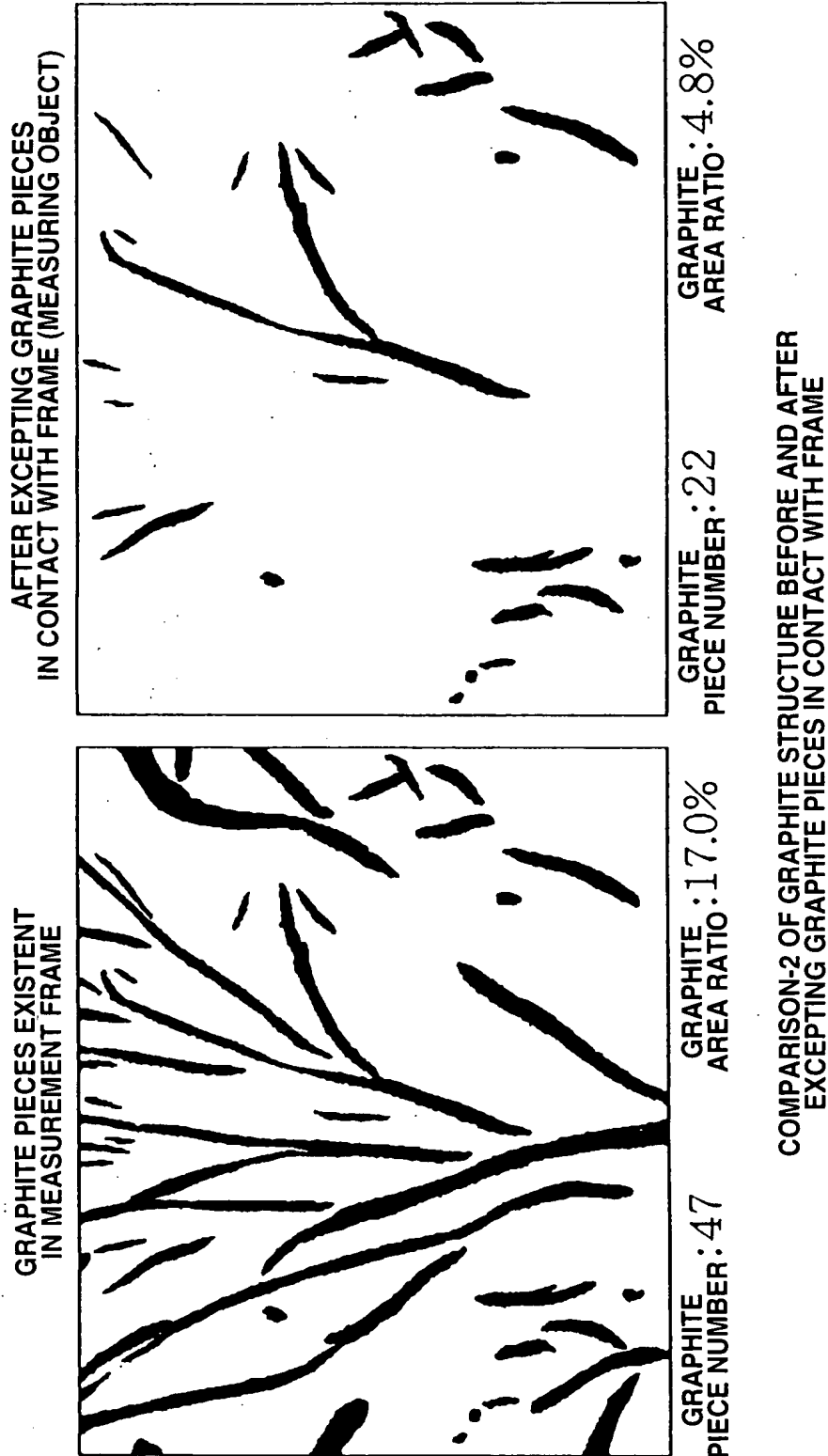


FIG. 21



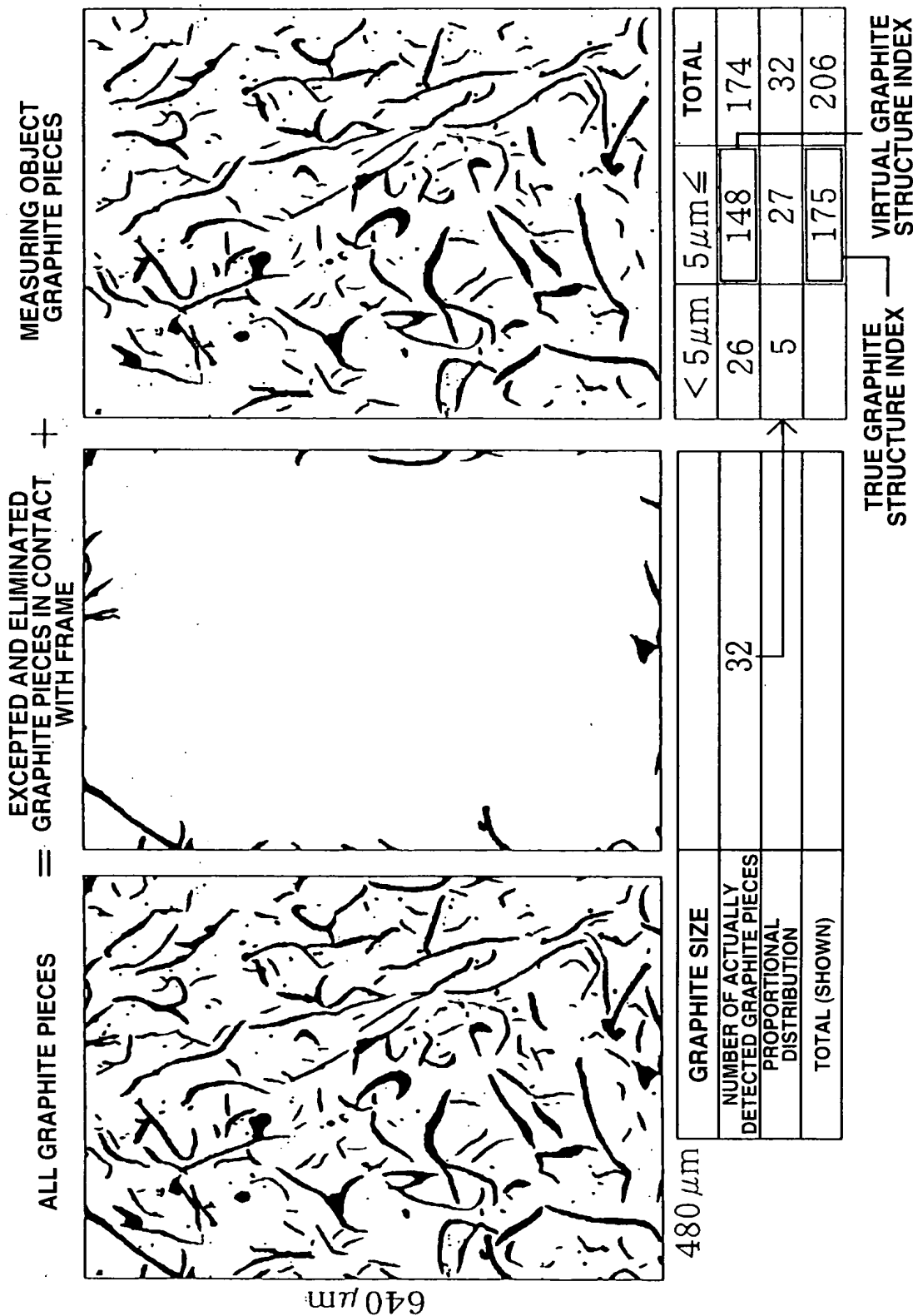
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FIG. 22



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FIG. 23



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FIG. 24

